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Annotated Briefing

Determining Navy Primary Care Requirements

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There are basically two different approaches to determining requirements of staffing a primary-care-based system. Both approaches have their strengths and weaknesses, but we found that the optimization model, although technically feasible from a modeling point of view, wasn't an approach we could follow and complete. The primary disadvantages concern the need for certain kinds of data. To determine who should staff a primary care system and how generalists and specialists substitute for each other, you need to carefully define who can do what. We used HMO staffing ratios for a large number of medical subspecialities. After applying these ratios to Navy beneficiary populations at 22 U.S. naval hospitals and nine overseas naval hospitals, we derived the kinds of staffing that would be observed had the HMO provided care for these beneficiaries.

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Determining Navy Primary Care Requirements

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Primary Care Planning Group Conference
11 December 1995

Robert A. Levy

This briefing presents some findings of the work I've done on staffing under a primary-care-based health system. The original CNA study began through tasking for MED-08, who was then ADM Dysart. It continued under ADM Rowley, and I am now supporting the Primary Care Planning Group as part of a short-term analytical effort, also sponsored by MED-08, ADM Johnson.

Outline

- Background on staffing issues
- CNA study assignment and approach
- Study findings
  - Comparing actual and proposed staffing at Navy hospitals
  - Linking proposed staffing with operational commitments
- Alternative approach to staffing
  - Introducing clinician capacity and population "requirements"
- Overall findings and site recommendations

Let me begin by showing you what I plan to cover in my brief. I'll start with a few comments concerning what I believe are some of the issues and concerns for requirements determination in Navy medicine. I'll discuss the specific question CNA was asked to investigate and how we approached the assignment. I'll present some of our background data and then several findings based on our approach.

Specifically, I'll compare the actual and proposed staffing at Navy hospitals under an assumed primary-care-based health system, which we based on HMO staffing patterns. Although the results I'll present are aggregated, in the analysis on which this discussion is based, we compare the actual and proposed staffing at each naval hospital—in CONUS and abroad—for the individual medical specialties that we observe for Navy clinicians. After presenting those results, I'll turn to an examination of how we can link this presumably "efficient" staffing with what the Navy defines as its operational requirements.

Finally, I'll present some new findings based on an alternative approach that examines staffing based on visit data and the capacity of clinicians to see patients. After comparing these results with our earlier ones, I'll offer some final conclusions and recommendations.

Pressures Facing Navy Medicine

- Navy medicine is under pressure to get smaller
- In the past, wartime requirements led to high staffing
- New Defense Planning Guidance focus is on major regional contingencies, not all-out war
- Medical care in civilian sector increasingly being delivered by managed care organizations
  - Focus on primary care and use of generalists
- DOD also urging managed care
  - Issue of who will provide the first contact
    - ❑Active-duty primary care providers or contract civilians

The Navy is getting smaller, with similar consequences for Navy medicine. The global war scenario led to large requirements for the Navy medical staff, particularly for the surgical subspecialists and those specialists in related fields. The new Defense Planning Guidance, with its focus on major regional contingencies, has led to reduced numbers of medical requirements, although current requirements remain proportionately higher for surgical and other subspecialists.

At the same time, medical care in the civilian world is changing. Health care is increasingly being delivered by integrated managed care organizations, such as health maintenance organizations that often serve as a model for managed care. HMOs have predetermined providers who deliver care to their beneficiaries. Primary care, with its reliance on providers who serve as an initial point of contact into the health care delivery system, plays an important role in controlling health care costs under managed care.

DOD, through Tricare, is also moving to managed care. I think an important part of what we're discussing here concerns the extent of the role of active-duty clinicians in providing primary care to DOD beneficiaries.

CNA Study Question

How should the Navy allocate its primary care providers and specialists throughout its facilities to minimize the cost of providing health care?

- **Include "real-world" constraints**
  - **Operational commitments**
  - **Staffing at sites with small populations**

This slide presents the question CNA was asked to investigate. An important part of the work was to try to include and take account of what I've termed real-world constraints. Specifically, these constraints include operational requirements and staffing at sites with small populations that can lead to natural inefficiencies when the Navy must staff these sites with whole people, not some fraction of a clinician. I won't say much about the second constraint, but I refer you to our original study, CNA Research Memorandum 95-36.

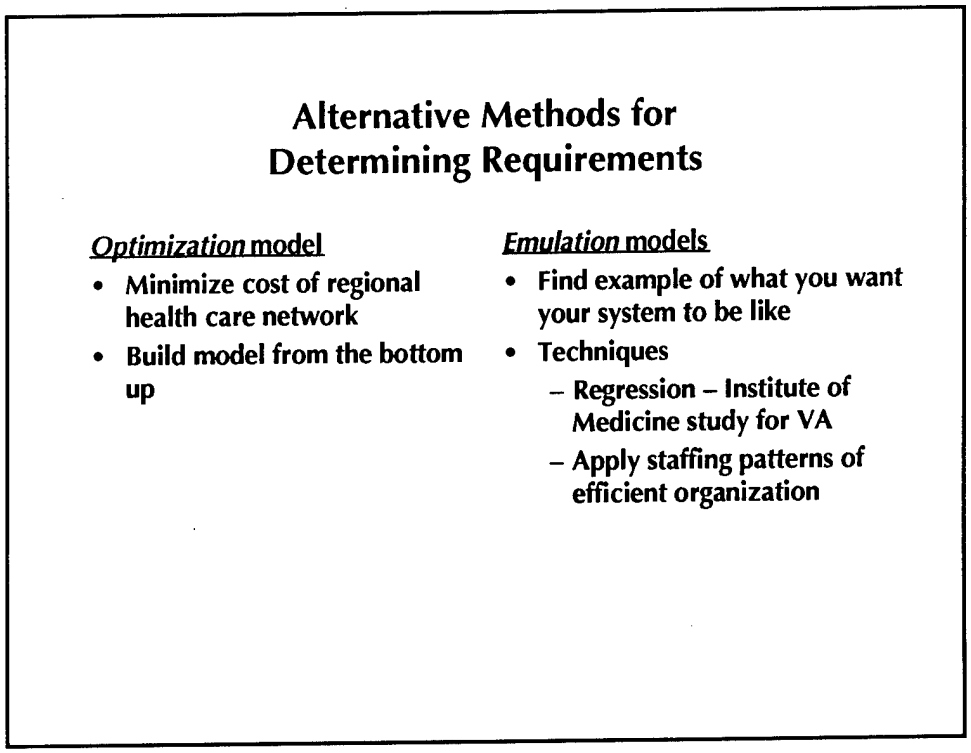
Later in this briefing, I'll describe in more detail what we did concerning operational requirements. Essentially, it involved explicitly including elements of the total health care support readiness requirements (THCSRR) in our staffing models.

Factors Affecting Navy Medical Staffing

- Navy must staff to meet operational commitments
- Major differences between Navy and HMO in
  - Patterns of practice
    - ❑Scope of services
    - ❑Beneficiary population served
  - Facility design
  - Support staff
  - Medical equipment
- Market forces less critical than for civilian providers
  - Policy changes implemented at specific sites must take note of systemwide effects

Several factors, not all of which we could account for in our analysis, will affect Navy medical staffing. We've already touched on operational commitments. In addition, there are other potentially important differences between the Navy and civilian health care organizations, such as HMOs. Here, I've listed some important ones, starting with the kinds of services offered and the populations served. I've tried to obtain some information on the former, and I will discuss later in the brief what we did to measure the number of Navy beneficiaries in each catchment area. But, any realistic attempt to emulate the staffing of another organization must take note of differences in their respective facilities, support staff, and equipment.

I wish to make a final point about an important difference between the Navy and civilian health care organizations. The civilian world faces a rapidly changing marketplace, and every civilian organization I spoke with alluded to the need to be flexible and to change quickly in order to keep up. The Navy faces pressures, but it doesn't face the pressure of potentially going out of business tomorrow. We must recognize, however, that what the Navy implements at one site must take account of systemwide constraints. Enough resources can be applied at one site to make primary care work, but a successful program must be capable of being implemented systemwide.



In this slide, I describe some of the conceptual issues that arose when I first began to think of how to staff a primary-care-based system. In our original study plan, I stated that we would begin with what is often referred to as the "standards" approach, but then examine the feasibility of using optimization techniques that would allow us to determine the "optimal" mix of generalists and specialists.

Here, I've briefly described two different approaches to determining requirements. The optimization model is built from the bottom up, with a careful definition of how you would want the system to work. Requirements are determined by minimizing the cost of providing care to a given population. I've termed the standards approach an emulation model because it involves finding an example of what you want your system to be like and then copying, or emulating, it. There are a couple of ways of doing this. The first alludes to a study undertaken for the Veterans Administration (VA) by the Institute of Medicine. The assumption made is that some VA sites were actually worth emulating. The second technique is to use the staffing patterns of the organization you feel delivers good and cost-effective care.

Optimization Model

Advantages

- Forces organization to define what it wants and how it wants to do it
- Means of translating services into staffing requirements
- Model can change to reflect changes in environment

Disadvantages

- Requires a lot of data
  - Clinical guidelines or paths
  - Good cost data
- HMOs tend to rely on simpler methods

Both approaches have their strengths and weaknesses, but we found that the optimization model, although technically feasible from a modeling point of view, wasn't an approach we could follow and complete. The primary disadvantages concern the need for certain kinds of data. In fact, the need for clinical guidelines was the main reason I asked for the original advisory group that in time led to the current Primary Care Planning Group. To determine who should staff a primary care system and how generalists and specialists substitute for each other, you need to carefully define who can do what. It was very hard—in fact, close to impossible—to get such precise definitions in the time required to complete the study. And perhaps almost as important, we found that, even in the civilian world, facility staffing was accomplished using staffing ratios and the like.

CNA Study Approach

- Use HMO staffing ratios
- Compare with current Navy staffing
  - Focus on larger, direct care facilities
    - ❑22 U.S.-based hospitals
    - ❑9 overseas hospitals
- Three important inputs
  - Staffing patterns from HMOs
  - Beneficiary population served
  - Navy staffing at 31 direct care facilities
    - ❑Include contract civilians at each facility

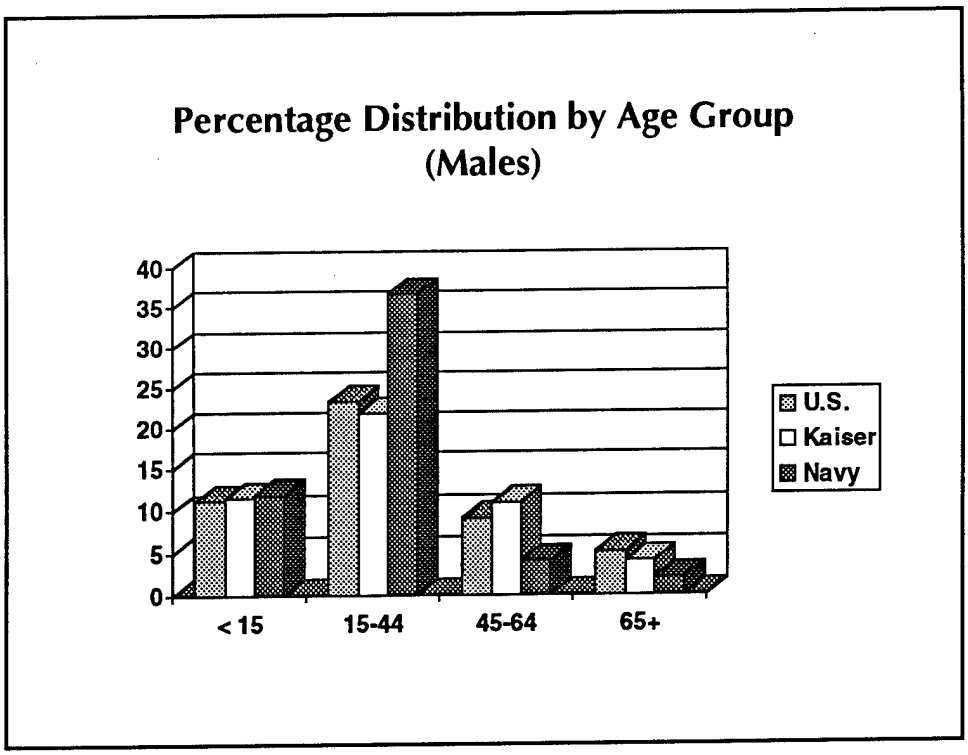
Let me turn to the approach we took in our study. We used HMO staffing ratios for a large number of medical subspecialties. After applying these ratios to Navy beneficiary populations at 22 U.S. naval hospitals and 9 overseas naval hospitals, we derived the kinds of staffing that would be observed had the HMO provided care for these beneficiaries. We then compared our derived staffing with the number of active duty and contract civilians at each site.

Staffing Ratios

- Use of HMO staffing ratios isn't new
- What are "good ones" to use?
- Our study relied on information from two established HMOs
  - Kaiser-Permanente (K-P)
  - Harvard Community Health Plan (HCHP)
- Examine variations across and within plans
  - General conclusion: values are in same ballpark

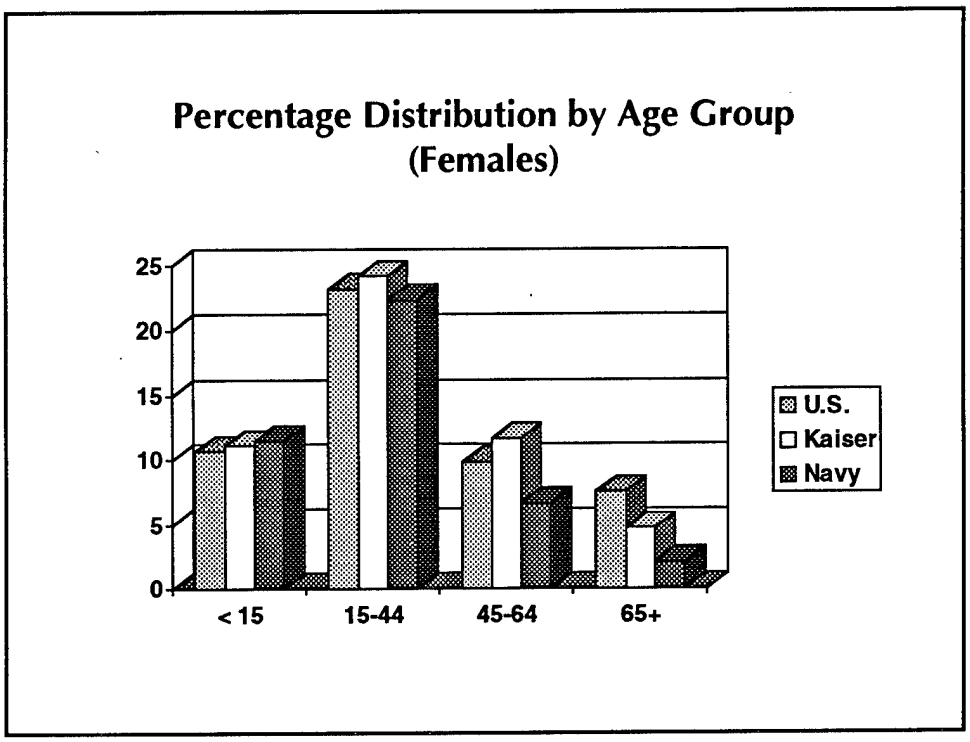
I'm going to provide some detail on each of the three important inputs we required—namely, staffing ratios, the beneficiary population, and the number and type of Navy providers. First, for staffing ratios, the use of HMO staffing ratios isn't new, and the literature provides several examples of analyses that apply a ratio to a population to derive an implied staffing requirement. But were any of these appropriate for our use? Generally, we discovered that using any of them meant obtaining more information than we could possibly derive from the articles themselves, or they were just too out of date.

Although we would have liked to gather information from as many well-established HMOs as possible, we realized that we needed to concentrate on what are known as staff or group model HMOs because they directly employ physicians and other medical staff, much as Navy clinicians work for the Navy. We felt that it was better to try and understand the basis for staffing for a few good examples of HMOs than to try and gather a little information from many. Therefore, we relied on information from two long-established plans: Kaiser-Permanente and the Harvard Community Health Plan. We spent some time examining their staffing patterns and have tried to understand some of the reasons why they differ. Although the two plans vary, even within the same plan because they aren't rigidly centralized, the general staffing guidelines are roughly comparable. Before I show some of the staffing patterns, let's look at beneficiary populations by age and sex.

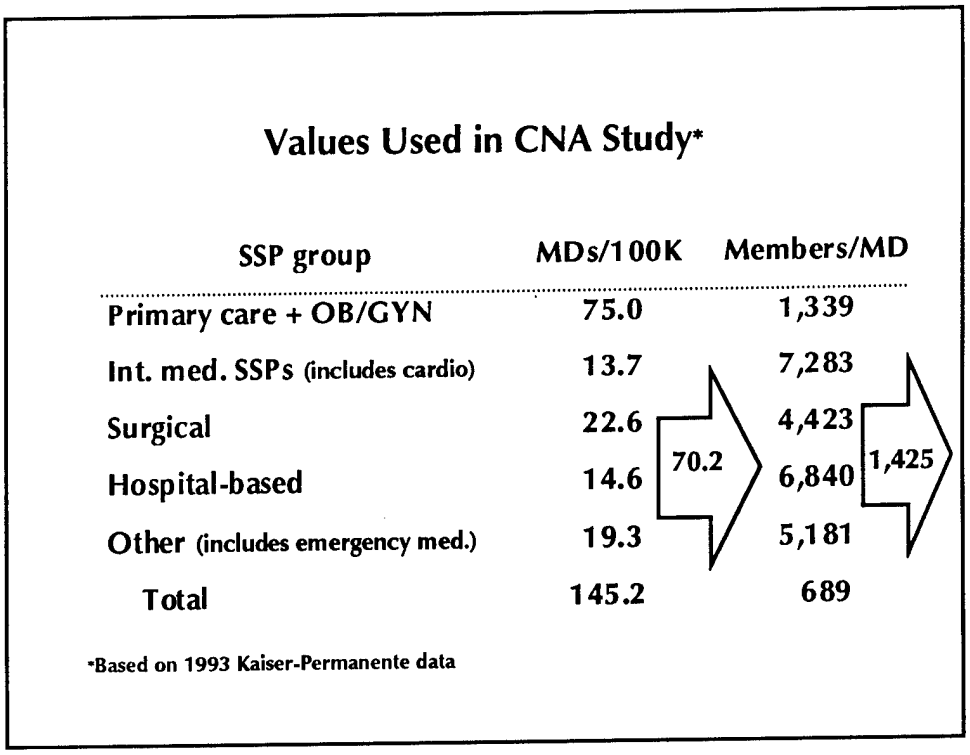


In general, the study results rely mainly on Kaiser-Permanente because we had more complete information on them and they tended to use more of their own subspecialists. Here's a simple comparison of their population and the Navy's, along with the U.S. population.

First, for males, there are four age groups shown. For those under the age of 15, the three populations are quite similar. Not surprisingly, the Navy has many more males in the second age group—those between 15 and 44. The Navy beneficiary population has many fewer males age 45 and older, particularly over 65. Kaiser has fewer older enrollees (i.e., those over 65), but their male population over 44 is similar to the United States as a whole.



The Navy female population is generally similar under the age of 45, but is markedly smaller for those over 45. Once again, it has a much smaller 65+ population than either Kaiser or the United States.



Here's a summary of the actual staffing ratios that we used in our study. Kaiser provided the number of full-time equivalent (FTE) physicians, physician assistants, and nurse practitioners and the age and sex of the beneficiary population for several of its plans (e.g., northern and southern California, and nationwide values) for 1993. The data had good detail by subspecialty, although for this slide I've aggregated to what I call subspecialty group (our paper explains which SSPs are in what group).

I've presented the information in two ways here: (1) the number of MD equivalents per 100,000 population and (2) the population per provider. Note that the latter isn't exactly the same as a panel size in that it doesn't break down the population into the kinds of patients seen (e.g., for pediatrics, by those under 15). But it can be converted with the right information.

The numbers suggest that a little over half of the clinicians provide primary care and that the number of members per physician is a little more than 1,300. I've added all other specialties to show that they represent about 1,425 members per MD. Finally, in total, there are about 145 MDs per 100,000 population or about 700 members per MD equivalent.

Projected Provider Ratios*
(Member/MD)

	1993	1995
Primary care ratio	1,473	1,363
Urgent	9,680	9,680
Surgical SSPs	4,765	5,018
Nonsurgical SSPs	2,556	2,591
Specialty ratio	1,663	1,709
Nonadmin. MD's ratio	723	703
Administration	34,365	38,830
Total	708	691

*Based on K-P planning numbers

The next set of values represent K-P planning ratios for two different years, 1993 and 1995. I felt they would provide an interesting set of numbers to compare with the actual values we used in our study. K-P Mid-Atlantic has fewer large, fixed facilities than the Kaiser operations based on the West Coast and probably represents a purer primary-care-based health system.

Note first that, although I tried to make the categories match as closely as possible, some slight differences remain (e.g., urgent care and administration are broken out separately here). Nonetheless, the values reported for planning purposes are similar to what we used. If urgent care is included, the value of members per MD for primary care would be slightly lower than the previous value, but still fairly close. It's expected to decline slightly for primary care, but will either stay the same or increase for the other specialty groups. It's probably not too surprising that the value for the surgical subspecialties is higher than what we used (i.e., that planned for members per MD) because of the Mid-Atlantic focus on primary care. The planned value for the total number of members per MD is very close to what we used, particularly for 1995.

Comparison of Three Plans (Members/MD)

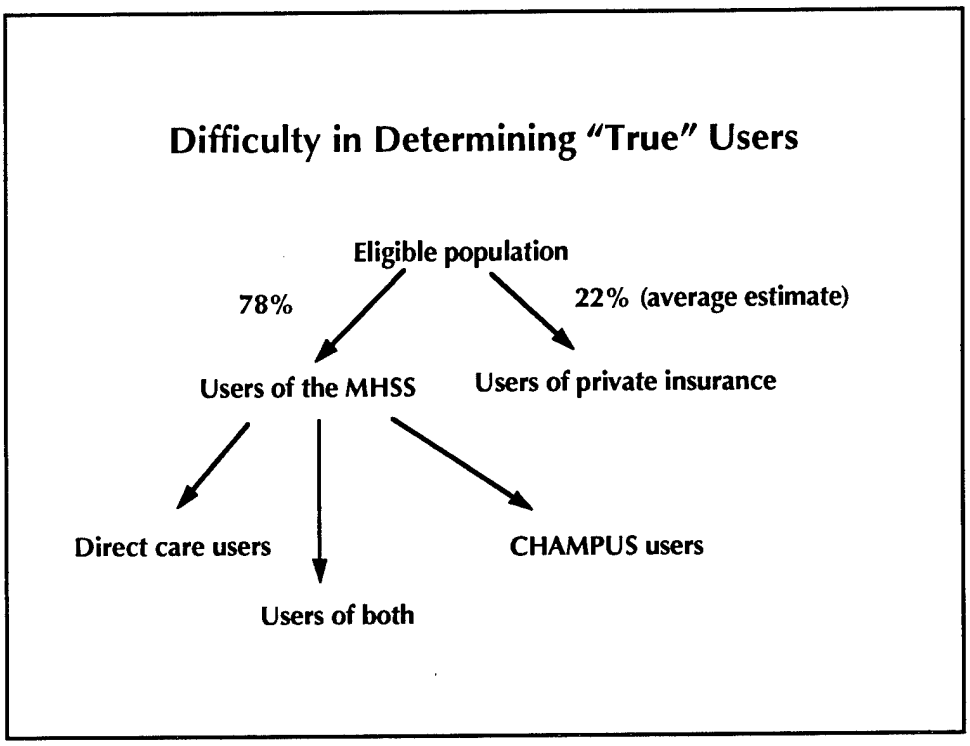
	K-P Mid-Atlantic	K-P Gaithersburg	HCHP Cambridge
Internal med.	3,395	3,824	2,500
Family practice	27,565	–	–
Pediatrics	5,658	4,333	3,846
OB/GYN	4,635	6,500	5,000
Urgent and prev. med.	8,661	–	–
Primary care	1,200	1,500	1,150
Specialty care	1,682	–	6,190*
Total	698	–	970

*Refers only to specialty services offered on-site

A third and final set of numbers pertains to actual FTEs for the period through October 1994 for the K-P Mid-Atlantic region and some 1995 values for two specific clinics, one for K-P and the other for HCHP. One has to be careful comparing the entire region with individual clinics, but the numbers do illustrate something about how the plans operate. The staffing and beneficiary numbers they each gave me imply a slightly richer staffing ratio at HCHP for primary care than at K-P's Gaithersburg clinic. I also included some sessions on specialty care that they provide at the Cambridge Center, but the numbers are probably a little misleading because much of the specialty care their enrollees receive is provided at other nearby clinics or medical centers.

Not surprisingly, the values for K-P Mid-Atlantic region match reasonably closely with their planning values. The value for family practitioners probably seems high, but partly that reflects a lack of clear K-P policy and use of the specialty. They're still trying to figure out how to use family practitioners most effectively, particularly at sites that already have a strong representation of internal medicine physicians and pediatricians.

(The Navy, on the other hand, relies much more heavily on family practitioners than does Kaiser or HCHP—the latter doesn't use them at all in the Boston area. The key reason we used the staffing values from these plans, however, is the difficulty associated with finding an HMO that has the full breadth of specialties—as the Navy does—and also uses large numbers of family practitioners for delivering primary care.)



Let me turn now to the second input required in our analysis, namely, the number of Navy beneficiaries served. As you are well aware, measuring the number of DOD beneficiaries is an ongoing problem because of the alternatives offered them.

As the simple graphic illustrates, the eligible population is made up of two groups: those who use the Military Health Services System (MHSS) and those who use private medical insurance. OSD/HA conducts a survey that estimates that about 22 percent of the eligible population relies on private insurance. But, the MHSS includes CHAMPUS users as well. Some MHSS users rely on the direct care system, some rely on CHAMPUS, and some rely on both, switching back and forth as they determine it to be in their interest.

The main point here is that, in order to apply a staffing ratio, we need a reasonable estimate of the beneficiary population.

Determining Direct Care Users

- OSD/HA survey reduced DOD eligibles to MHSS users
- But, staffing should reflect users of direct care system
- Approximated "true" users for all 22 CONUS naval hospitals
  - Based on MTF and CHAMPUS workload data
  - Based on CNA Tricare survey for 5 catchment areas

We argued in our study that, as an upper bound, one can use the number of MHSS users, not the number of eligibles. Even this number, however, includes people who rely on CHAMPUS for at least some, if not all, of their medical care. For efficient staffing, one would really like to know the number of direct care users (i.e., those who use the naval hospital and associated clinics).

In our study, we approximated the number of direct care users at all 22 CONUS hospitals. At all overseas hospitals, because of the lack of alternatives for health care, we used the number of eligibles as the relevant population. In CONUS, we assumed that all active-duty members rely on the military treatment facility (MTF), but only some fraction of dependents and retirees do. We had to approximate this number, which we did mainly by using the relative workload at the MTF, compared to CHAMPUS. We realize this is a fairly crude measure, but found we could compare our calculated measure with some survey information that CNA had collected for five catchment areas: Portsmouth, Camp Lejeune, and Cherry Point in the East, and San Diego and Camp Pendleton in the West. We knew there were likely to be some differences between the two numbers, but wanted to at least make sure they weren't too unreasonable.

Percentage of Navy MTF Clinicians

	Naval hospitals (NHs)	
	22 U.S.	9 overseas
Primary care	40.3	10.3
Internal med. SSPs	91.5	< 1
Surgical SSPs	79.3	13.8
Hospital-based SSPs	76.9	13.3
Other SSPs	76.6	12.3
Total	58.6	11.1

The final set of numbers pertained to the number of active-duty clinicians and contract civilians at each site, which we measured as of May 1995 from BUMIS data. For the exact numbers at each site, I would have to refer you to my study and the related spreadsheets. What I've tried to show here are some summary measures of the percentages in the various SSP groups at CONUS and overseas hospitals. For example, the numbers indicate that the 31 hospitals in our study have roughly half of all Navy active-duty primary care providers, about 93 percent of surgeons, and almost 70 percent of all clinicians.

Although we included the number of interns and residents at each site for completeness, when we made our calculations, we only counted fully trained MDs and their equivalents at all naval hospitals and the associated clinics within the 40-mile catchment area. This meant we counted several general and undersea medical officers (GMOs and UMOs) and flight surgeons, but not the interns and residents. The implicit assumption we made was that, for purposes of providing care to beneficiaries, all fully trained physicians counted as 1 (not some fraction based on how much time they were involved in other duties, such as GME or other Navy responsibilities) and residents counted as 0.

Primary Care as Percentage of Total Providers

Organization	Excluding OB/GYN	Including OB/GYN	Desired
Kaiser-Permanente	43	54	60
Navy (at 22 CONUS NHs)	37	41	?
Navy (total)	53	57	?

A second illustration compares Navy active-duty primary care providers with what we used for Kaiser. When comparing the entire Navy staff to Kaiser's, the Navy seems fairly high, with more than half of all of its providers being counted as providing primary care. This high value is attributable mainly to the large numbers of GMOs, UMOs, and flight surgeons in the Navy (who make up more than one-quarter of all its clinicians).

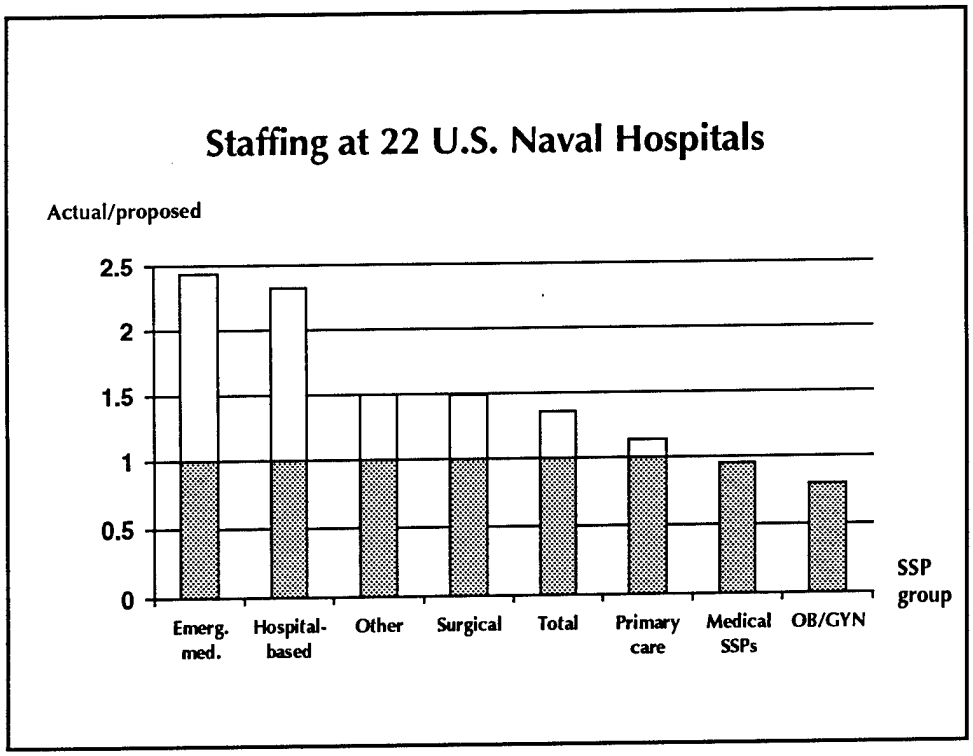
The percentage at the 22 NHs (and associated clinics) is lower, with about 37 percent of the providers being counted as primary care givers, excluding OB/GYN, or about 41 percent when it's included. Note that we included the percentage made up of primary care providers that Kaiser told us they would like to move to—about 60 percent.

Summary of Method

- Estimate Navy direct care user population
  - Approximately 63% of Navy eligible population
- Apply Kaiser (nationwide) staffing ratios
  - At each Navy direct care site
  - For each specialty
- To illustrate findings, calculate ratio of actual to proposed staffing
  - If > 1, actual Navy staffing higher than HMO
  - If < 1, actual Navy staffing lower than HMO

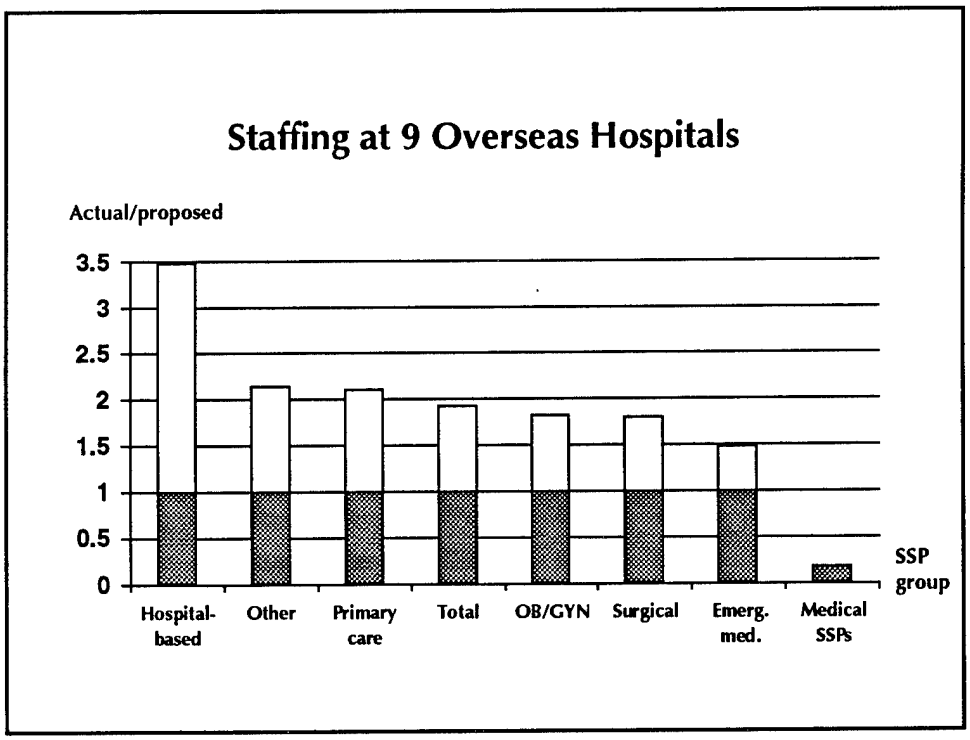
Before presenting our results, let me summarize our method. We estimate the number of beneficiaries who use the direct care system and then apply the staffing ratios to this number at a site to derive a "proposed" staffing value. (In our study, we also present proposed staffing values based on the larger number of MHSS users.)

We then compare the proposed values to the actual values (which include contract civilians) at each site and for each specialty. In the next few slides, we present aggregated values that have been put in ratio form to illustrate what we found. A value greater than 1 means the actual Navy staffing is higher than under the HMO staffing; a value less than 1 means the Navy staffs fewer than would the HMO.

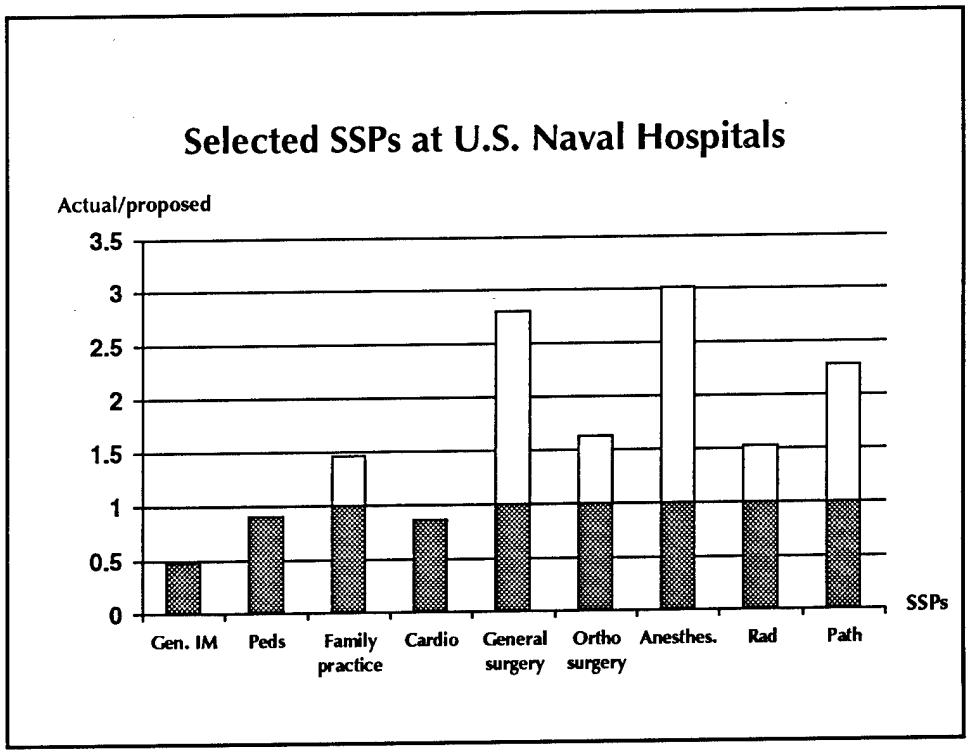


We begin with the 22 CONUS hospitals. For the medical subspecialties and OB/GYN, the Navy staffs a little below the HMO (which, for OB/GYNs, is mainly attributable to smaller numbers of women in the Navy population). We count slightly more primary care providers, but our numbers show that this is a result of almost half being either GMOs or contract civilians. The Navy couldn't rely on only active-duty clinicians to provide primary care under the HMO system.

The Navy is particularly high in emergency medicine, the hospital-based SSPs (e.g., anesthesiology), and several of the surgical SSPs. Overall, we calculated that the Navy has about 35 percent more clinicians than would be required by an HMO serving the direct care user population. If the population served was all MHSS users, however, the value falls to only 7 percent.



There are proportionately even more providers overseas, with only the medical SSPs being thinly staffed. For every other SSP group, we calculate at least 50 percent more providers under the current system. Again, the overseas bases present an easier count of the beneficiary population, but there are few, if any, alternatives to military care.

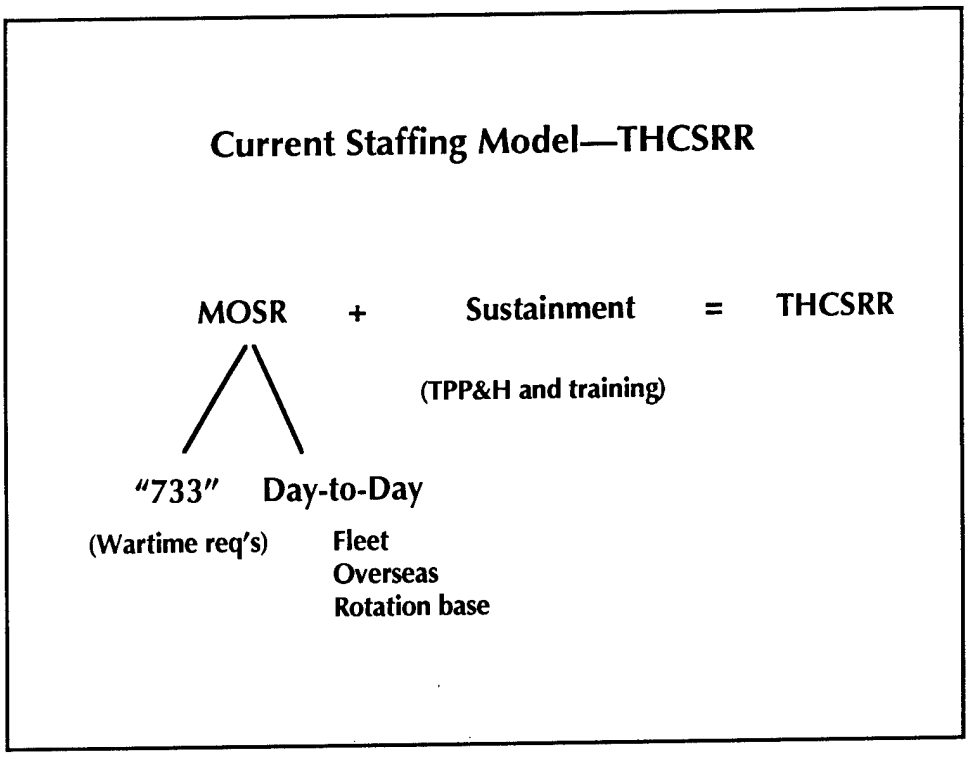


The third, and final, set of findings illustrates what we found for several selected SSPs. The Navy seems particularly high in general and orthopedic surgery, as well as anesthesiology and pathology. It is close in pediatrics and cardiology to the staffing patterns exhibited by the HMO. Again, adjusting for the specific nature of the work or the population served might lead to somewhat different numbers, particularly for such fields as orthopedics.

Factors Constraining Efficiency at NHs

- Lack of enrolled population
  - But upper bound given by "MHSS user" population
- Little, if any, monetary cost of visit to beneficiaries
- Wartime requirements
  - Wartime focus on surgical specialties, not primary care
  - Navy-wide constraint, not on individual naval hospitals
- Can't staff facilities in *fractional* units
  - Use HMO "critical mass" factors to design staffing "template"

There are several reasons why we would expect to see differences between the Navy and an HMO. The need to staff for wartime requirements is probably the major factor, but others include the lack of an enrolled population, which makes it hard to plan, and the essentially zero monetary cost for most beneficiaries when they go to the MTF. In our study, we focused on the last two factors: the role of wartime requirements and the issue of whether applying HMO staffing ratios, which are defined in fractional units, lead to unrealistic staffing patterns, particularly when applied to sites with small populations.



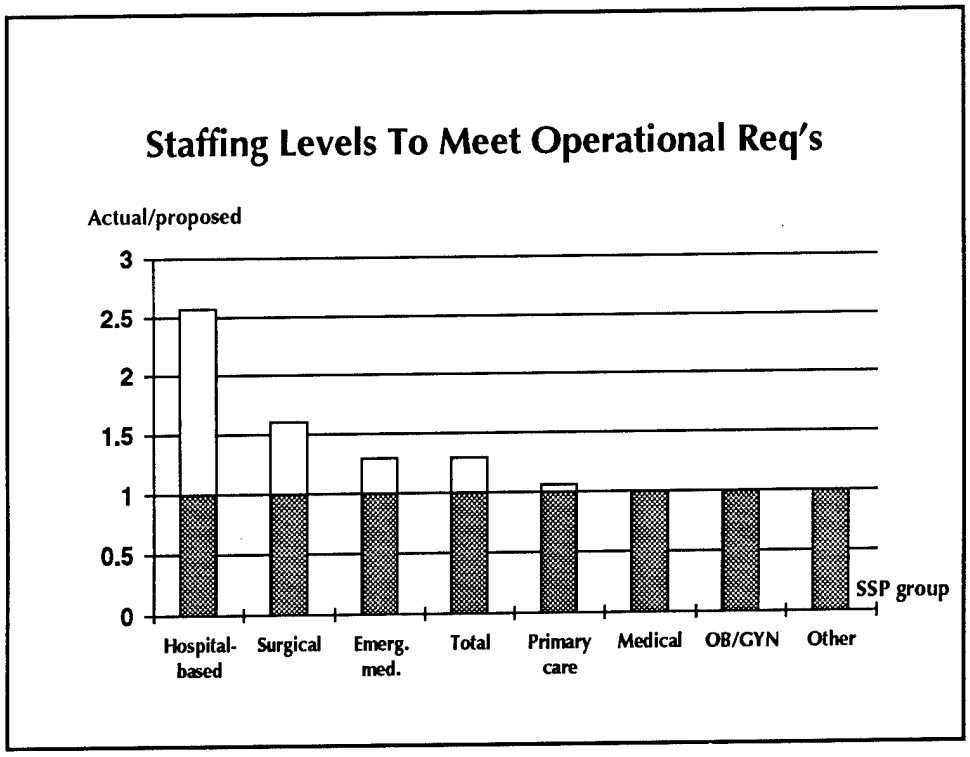
I'm going to present some results linking HMO staffing ratios with wartime requirements, but first let me briefly present the current Navy requirements model. The total health care support readiness requirements (THCSRR) model plays an important role in Navy-wide staffing for clinicians. The THCSRR is composed of two parts: the medical operational support requirement, or MOSR, and the sustainment piece, which covers primarily training requirements. The MOSR is itself made up of the wartime requirements, as defined by what came out of the so-called 733 study, and what is now referred to as day-to-day operational requirements. These two pieces combine to form the MOSR values for each SSP.

I then used the MOSR requirement, or at least a measure derived from it (specifically, I define the "effective MOSR," which is the MOSR less peacetime operational fleet requirements), to represent the operational requirement for fully trained physicians.

Accounting for Operational Requirements

- Attempt to meet operational commitments, but still follow HMO guidelines
- Follow MOSR for each SSP listed
  - Decrease active-duty levels when not required
    - ❑Fill in with contract civilians
    - ❑Ensure HMO requirements are met
  - Increase active-duty levels when required

The basic assumption was that it was important to meet the Navy's medical operational commitments, but to staff when possible according to the HMO patterns that we used earlier. This slide describes how I tried to do that. I followed the MOSR for each subspecialty listed. If the MOSR number was lower than the actual value that we found in the shore community, I reduced the number of active duty, but ensured that at least the HMO staffing requirement was followed. I used additional contract civilians when necessary. On the other hand, if the MOSR value was higher than the number in the shore community, I increased it (e.g., for general surgeons and anesthesiologists).



This graphic shows the results of changing the values to either the MOSR levels or the HMO staffing patterns, whichever was greater. That doesn't mean that some SSPs weren't decreased from current levels. For example, if both the MOSR and HMO staffing ratio implied a smaller number than what we observed at the site, we cut the number to whichever was greater. The end result of doing this was to meet the MOSR values, but instead of having about 35 percent more providers than our most "efficient" case, there would be about 29 percent more providers, a decrease of roughly 6 percent at these facilities.

Alternative Approach to Staffing

- Based on visit methodology developed by a K-P physician considered the "staffing expert"
- Benchmarked MD office visit capacity, by specialty
  - Based on time in office
  - Based on average at four most productive northern California medical centers
- Implies another method for developing staffing ratios
  - Can be compared to those we used in our study
  - Can be compared to values implied by Navy MTF visit data

Thus far, I've presented findings based on what we did in our study for BUMED, which is written up in the paper that many of you have seen. But, a Kaiser medical administrator for one of the Washington area medical centers gave me a paper by a physician whom I had been told was Kaiser's "staffing expert." The paper provides a different way of determining requirements. (In fact, I had spoken with Dr. Smoller several months ago and felt he would be a good person for the group to speak with, if we could arrange it.) It was based on benchmarking MD office visit capacity, which in turn was based on the physicians' time in office. He also provided estimates of the requirements for visits by the population served. He's based on the West Coast, so he used data from what he felt were four of the best clinics in that area. I felt his staffing "model" provided another way to see if the numbers that I derived from my study were reasonable.

In other words, I could use his method and compare what he suggested for staffing with what we used for our work. In addition, I thought it might be interesting to use some Navy outpatient visit data and derive an implied staff for a few naval hospitals.

Doctor Office Visit Capacity, Requirements, and Implied Staffing—Primary Care

Specialty	Capacity/MD /month	Req's/1,000 mem/mo#	MD FTEs/100K	Staffing ratio
Medicine	360	118-137	33 - 38	2,600-3,030
Pediatrics	408	75	18.3	5,500
After hrs & ER	360	20-40	8.75	11,500
OB/GYN	281	40-50	14 - 18	5,500-7,000

#Depends on characteristics of population

Let me show you some of the information the staffing expert provided. This slide presents some data for primary care (including OB/GYN). He wasn't always clear with his definition of SSPs, but I tried to interpret his numbers as best I could. First, he provided an estimate of the number of doctor office visits (DOV) per month that a clinician could realistically see, based on benchmarks from four of the most productive medical centers for that specialty (for the northern California region). Then he gave an estimate of what the population requirements for visits would be per 1,000 members. From these two numbers, it's a fairly simple calculation to derive the number of MD FTEs per 100,000 population that we had used in our analysis. From this last number, we could also easily derive what we have been calling the staffing ratio, which is really the number of members per MD equivalent.

Doctor Office Visit Capacity, Requirements, and Implied Staffing—Selected SSPs

Specialty	Capacity/MD /month	Req's/1,000 mem/mo	MD FTEs/ 100K	Staffing ratio
Surgery	211	11	5	20,000
Dermatology	563	20	4	25,000
Allergy	347	4.3	1-2	50-100 K
Neurology	172	2.5	1-2	50-100 K
Urology	237	5.5	2	50,000
Ophthalmology	324	12	4	25,000
ENT	281	8	3.2	31,000
Orthopedics	236	12	5	20,000

This is an analogous slide for several of the medical and surgical SSPs. There's often a wide range, but nonetheless it provides a useful comparison with what we found earlier. Generally, the numbers we derived and used to derive our "proposed" staffing were fairly similar to what he finds here.

MTF Visit Data and Implied Staffing

- Link K-P benchmarks with clinic outpatient visit data
  - 1995 MEPRS FTE and visit data for 5 NHs
    - ❑Compare to clinician FTEs only
  - But, visits not broken out separately by skill level
    - ❑Lower bound = Total visits * Clinician FTEs/Total FTEs
    - ❑Upper bound = Total visits
- Calculate implied FTEs required for both bounds
  - Compare both numbers with actual FTEs at each clinic
  - Compute percentage of clinics where actual > upper bound

The next thing I did was a bit more complicated, but I wanted to see what happens when I apply these benchmarks to Navy data. I realize that this may be a bit controversial, and that there may be a lot of reasons why the two data sets aren't directly comparable, but I'm hoping it provides some useful information and implications to think about.

First, I had to rely on MEPRS data for individual clinics, which I realize are far from perfect, but they're still the best data currently available (at least until the Ambulatory Data System comes on-line). The MEPRS data provide FTE values for about five individual skill levels, such as clinicians (which includes residents and fellows), but it doesn't break out the visit data by skill level. Because my earlier analysis concentrated on MDs (or other practitioners), I wanted to focus on them here. Therefore, I needed a way to determine just how many visits these clinicians saw because, from the visit data and the K-P benchmarks, I could determine the number of FTEs required at each clinic.

What I did was to compute two measures of visits and FTE requirements. The first took the visit data and used the proportion of clinician FTEs at the clinic out of all nonadministrative FTEs. In other words, all providers saw visits proportional to their FTE number at the clinic. I called this value the lower bound. The upper bound assumes that clinicians saw 100 percent of the visits. I think this is highly unrealistic, but it does provide an upper limit on the number of visits clinicians could see. I then computed FTE requirements for this upper bound as well.

Comparing Two K-P Staffing Ratios (Primary Care)

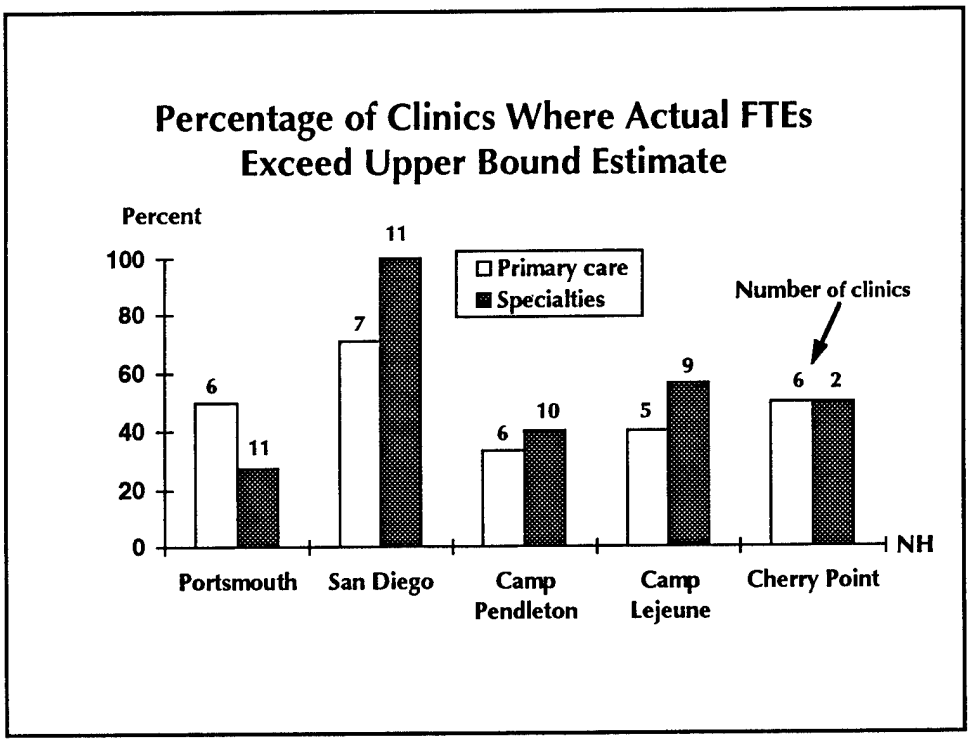
Specialty	Staffing ratio (CNA values)	Staffing ratio (from benchmark)
Medicine	2,800	2,600-3,030
Pediatrics	5,000	5,500
OB/GYN	6,700	5,500-7,000

This slide presents the two estimates of staffing ratios: the first set of values is what we used in our study to determine a proposed staff, and the second represents the numbers derived from the benchmarking procedure. For both pediatrics and OB/GYN, some adjustment for beneficiary population characteristics should be made to keep them comparable with the second estimate. Specifically, Dr. Smoller adjusts the pediatric numbers to account for the percentage of the population 14 years or under and their expected visit rate. For OB/GYNs, the number depends on the delivery rate (per 1,000 members). He showed two examples, based on 1.2 and 2.0. I checked a few Navy sites and they seemed to be fairly similar.

Comparing Two K-P Staffing Ratios (Selected SSPs)

Specialty	Staffing ratio (CNA values)	Staffing ratio (from benchmark)
Surgery	17,000	20,000
Dermatology	34,000	25,000
Allergy	66,000	50,000-100,000
Neurology	53,000	50,000-100,000
Urology	37,000	50,000
Ophthalmology	26,000	25,000
ENT	36,000	31,000
Orthopedics	22,000	20,000

In this slide, I compare the staffing ratios for individual specialties. The two sets of estimates are fairly close, which isn't totally coincidental, given that they both pertain to the Kaiser system. Nonetheless, they were derived from different sources.



I had data from the five naval hospitals shown above. Although I computed values for each specialty, I've aggregated them here to two categories—primary care and the "specialties." For each of these aggregated specialties, the bar shows the percentage of clinics in which the actual FTE exceeded the number, assuming that clinicians saw all outpatient visits (i.e., the upper bound value). In addition, above the bar, I've included the number of clinics on which I based the percentage. Thus, 50 percent of the primary care clinics at Portsmouth were above the upper bound (in terms of FTEs)—out of 6 clinics, or 3 each—but the same 50 percent at Camp Lejeune meant only 1 of 2.

What does this tell us? First of all, there are some major differences even across fairly similar hospitals. It's certainly true that San Diego and Camp Lejeune are different, but San Diego is reasonably similar to Portsmouth. According to this measure, the majority of San Diego's clinics have high levels of staff. Indeed, all of the hospitals, particularly in the specialties, have high levels. I found it a bit surprising that it happens as much as it does in the primary care clinics as well. Yet, I did find in my earlier work that primary care is reasonably staffed for what we called the direct care user population.

(Let me comment about concerns expressed about the quality of MEPRS data used to calculate FTE values. Based on actual staffing data for several clinics at San Diego, the MEPRS implied FTE values were fairly close to the actual staffing, which for comparability includes fully trained physicians, residents, and fellows.)

Findings

- Navy appears to have sufficient primary care providers
  - But, must include GMOs and contract civilians at direct care sites
- Navy staffing higher than simple application of HMO staffing ratios
  - Primarily in surgical specialties and anesthesiology
- Much of this explained by operational requirements
  - Can link HMO staffing patterns and operational req's
- Alternative approach to staffing based on DOV capacity and MTF visit data confirms CNA study results

Let me summarize with some findings. There do appear to be enough primary care providers at the 22 CONUS NHs, but only if we include GMOs, UMOs, flight surgeons, and contract civilians at these facilities. The level of many SSPs is higher than at HMOs, but much of that is because of wartime requirements. We can reduce the additional staffing somewhat, by carefully following the combination of MOSR and HMO staffing patterns.

Finally, we also explored the implications of a somewhat different approach that based staffing on the number of visits required by the beneficiary population and the number that could be realistically seen by physicians. This approach yields similar implications to our earlier results.

Primary Care Site Recommendations

- Based on our individual site analyses that calculate beneficiary populations, actual and proposed staff
- Criteria
  - Current active-duty staffing about right for population levels
  - High levels of contract civilians
  - Facility design relatively modern and flexible
- Candidates
  - Small sites: Groton, Cherry Point, Millington
  - Large sites: Camp Pendleton, Charleston

I felt I should make some recommendations based on what we found from our work. For each naval hospital, we derived an estimate of the beneficiary population served, as well as the actual staff there and a proposed staff based on HMO staffing patterns. In determining criteria for implementing a primary care experiment at one of these sites, I thought it might be reasonable to look for sites that would indicate that the present staff is about right for the population served. Remember, my assumption is that fewer MD equivalents would be necessary to serve the current population of users or that the same number might be able to attract some from CHAMPUS. I'm implicitly assuming that, although access and satisfaction are two important outcomes of the experiment, not spending more money, or even saving some, is another. One way is to use the active-duty clinicians more intensively and reduce the number of providers on contract. That should lead to some immediate savings.

What I did was read through my data sheets and try, unscientifically, I admit, to determine which might be suitable. I've listed a few here, at both small and large sites. For those interested, I can provide the individual data sheets for all naval hospitals, and any site can be examined to determine its suitability as a candidate for the primary care implementation.

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